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(54) Title: **METHOD AND APPARATUS FOR IMPROVED DETERMINATION OF SPATIAL NON-AGGLOMERATED MAG-
NETIC PARTICLE DISTRIBUTION IN AN AREA OF EXAMINATION**

(57) Abstract: The invention relates to a method to prevent or reduce agglomeration of magnetic particles, wherein the magnetic particles are exposed to a varying magnetic field, more in particular, there is provided a method to determine the spatial distribution of magnetic particles in an examination area of an object of examination with the following steps: a) Generation of an imaging magnetic field with a spatial distribution of the magnetic field strength such that the area of examination consists of a first sub-area with lower magnetic field strength and a second sub-area with a higher magnetic field strength, b) Change of the spatial location of both sub-areas in the area of examination so that the magnetization of the particles changes locally, c) Acquisition of signals that depend on the magnetization in the area of examination influenced by this change, and d) Evaluation of said signals to obtain information about the spatial distribution of the signals in the area of examination, wherein the magnetic particles before or during the determining of the spatial distribution of the magnetic particles in the examination area are exposed to a varying magnetic field at least some of the time, more particularly periodically or continuously such as to reduce or prevent agglomeration of the magnetic particles. The invention further relates to an apparatus to determine the spatial distribution of magnetic particles comprising means to prevent agglomeration of magnetic particles. The invention further relates to magnetic particle compositions having improved imaging properties in the method according to the invention.